



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,145	03/29/2006	Leendert Van Der Tempel	GB 030180	3766
24737 7590 07/07/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
PEACE, RHONDA S				
ART UNIT		PAPER NUMBER		
2874				
MAIL DATE		DELIVERY MODE		
07/07/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,145

Applicant(s)

VAN DER TEMPEL, LEENDERT

Examiner

Rhonda S. Peace

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7, 9, 10, 12-17 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7, 9, 10, 12-17 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments, see pages 9-10, filed 4/2/2009, with respect to the objection to the drawings have been fully considered and are persuasive. The objection to the drawings has been withdrawn.

Applicant's arguments, see page 10, filed 4/2/2009, with respect to the objection to claims 12 and 15 have been fully considered and are persuasive. The objection to claims 12 and 15 has been withdrawn.

Applicant's arguments, see pages 10-13, filed 4/2/2009, with respect to the rejection of claims 4, 12, and 23 and the combined teachings of Green and Harari have been fully considered but they are not persuasive.

Applicant argues the combination of Green and Harari fails to disclose or suggest, "wherein the second layer comprises a series of adjoining troughs and ridges, each trough and each ridge including substantially flat portions, and wherein transitions between troughs and ridges are curved." Applicant argues that Green discloses rectangular troughs and ridges, while Harari discloses only grooves that are formed with entirely curved surfaces and do not show any flat surfaces. Therefore, the combination of Green and Harari at best discloses either rectangular troughs and ridges, or completely curved troughs and ridges, and therefore does not render obvious each trough and each ridge including substantially flat portions, and wherein transitions between troughs and ridges are curved. The Examiner respectfully disagrees.

The Examiner agrees with the Applicant that Green only discloses rectangular troughs and ridges which include substantially flat portions, as first expressed in the non-final rejection mailed 1/8/2009. However, the Examiner disagrees that Harari only shows entirely curved troughs. Harari specifically states, "A groove or other type of indentation having a rounded cross-section shape is generally preferred over one having sharp edge(s), since stresses resulting from the circuit chip being bent are less concentrated." See Harari, col. 6 lines 25-29. Therefore, in view of Harari, one of ordinary skill in the art would have found it obvious to round the sharp edges of the rectangular shaped troughs and ridges of Green in order to decrease stress within the circuit chip.

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference (such as the total replacement of the grooves of Green by the grooves of Harari); nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The teachings of Harari suggest to one of ordinary skill that rounded edges are preferred over sharp edges, and therefore one of ordinary skill would have found it obvious to round the sharp edges of Green, thereby resulting in a structure having substantially flat portions and rounded transitions between troughs and ridges.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the substrate" in line 2. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, claim 14 is considered as dependent upon claim 21, which recites a third layer comprising a substrate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4, 6, 7, 9, 10, 12, 13, 17, and 21-25 are rejected under 35 U.S.C. 103(A) as being unpatentable over Green (US 2002/0068389) in view of Harari et al (US 5,786,988).

Pertaining to claims 4, 6, 7, 13, 17 and 21, Green discloses a device comprising a first corrugated flexible layer 2, a second corrugated layer comprising portions 12 and 16 in contact with the first layer 2 along its length so as to prevent fracture of the second layer portions 12 when the first layer 2 is deformed, and a third layer 18 in contact with the first layer 2, wherein the third layer 18 comprises a substrate, the first layer 2 comprises a coating on the third layer 18, and the second layer portion 16 is a coating on the first layer 2. See ¶¶ 0035-0038 and 0046-0047. The device may be used to form a display. See ¶ 0050.

Further pertaining to claims 4, 6, 7, 13, 17, and 21, Green discloses the device as described above, including the conducting portions 16 which follows the square-cut grooves 4 of the first layer 2, thereby resulting in a geometry where portions 16 exhibit adjoining rectangular troughs and ridges which have substantially flat portions. However, Green does not disclose the adjoining troughs and ridges as further including curved transitions between the troughs and ridges, for example, when the grooves in the first layer are curved.

In conclusion with respect to claims 4, 6, 7, 13, 17, and 21, Harari discloses integrated circuit chips formed on a flexible substrate, wherein the substrate 121 is formed with circular grooves 123. See Figure 9, col. 5 lines 66-67 and col. 6 lines 1-5. It would have been obvious to one of ordinary skill in the art to use curved edges as opposed to sharp edges, as taught by Harari et al, in the device as taught by Green, thereby resulting in a conductive portion having troughs with substantial flat portions, ridges with substantial flat portions, and curved transitions between the troughs and

ridges, as Harari et al discloses grooves with curved edges are preferable over grooves having sharp edges (such as square-shaped or triangular-shaped grooves) as the stresses resulting from bending the circuit chip are less concentrated. See Harari et al, col. 6 lines 25-31.

Addressing claims 9, 10, and 12, Green in view of Harari discloses the device as described above. Green further discloses the second layer, specifically portion 16 of the second layer, comprises a series of adjoining troughs and ridges, each trough and ridge including flat portions, wherein the widths of the flat portions are selected to prevent fracture when the first layer is deformed, thereby maintaining a proper electrical connection between elements 12, as portion 16 is electrically-conducting and highly flexible. See Green Figure 1D, ¶ 0038. Cracks 22 may be provided along the length of the first layer 2 to improve its flexibility, and are formed by flexing the first layer 2. See Green, Figure 1D, ¶ 0038. As seen in Figures 1C and 1B of Green, the widths of the substantially flat portions of portion 16 of the second layer are selected to be less than a predetermined length, wherein the predetermined length is the average length between cracks 22 of the first layer 2.

Concerning claim 22-25, Green in view of Harari et al disclose the device as described above, wherein the method of forming the device includes forming the first and second layer so as to have the geometry as described above. Also as previously discussed, Green discloses the second layer, specifically portion 16 of the second layer, comprises a series of adjoining troughs and ridges, each trough and ridge including flat portions, wherein the widths of the flat portions ("portion lengths") are selected to

prevent fracture when the first layer is deformed, thereby maintaining a proper electrical connection between elements 12, as portion 16 is electrically-conducting and highly flexible. See Green Figure 1D, ¶ 0038. Cracks 22 may be provided along the length of the first layer 2 to improve its flexibility, and are formed by flexing the first layer 2, and therefore flexing the layer to form the cracks determines the spacing of the cracks for that specific radius of curvature. See Green, Figure 1D, ¶ 0038. As seen in Figures 1C and 1B of Green, the widths of the substantially flat portions of portion 16 of the second layer are selected to be less than the average length between cracks 22 of the first layer 2, and therefore the widths of the flat portions ("portion length") is dependent upon the spacing of the cracks, and the widths of the flat portions ("portion length") do not exceed three times the average spacing of the cracks.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green (US 2002/0068389) in view of Harari et al (US 5,786,988) as applied to claim 4 above, and in further view of Wilk et al (US 4,451,596).

Pertaining to claim 5, Green and Harari et al discloses the device as described above. Green discloses the first layer is formed of a material, wherein the material is chosen to give the desired flexibility for the application. See Green, ¶ 0039. However, Green/Harari et al does not disclose the use of acrylate lacquer as the material used to form the first layer. Wilk et al discloses acrylate lacquers, wherein the flexibility of the lacquer is based upon the monomers used in the lacquer. See Wilk et al, col. 3 lines 66-68. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use acrylate lacquer as the material for the first layer, as the

level of flexibility of acrylate lacquer may be easily adjusted, thereby allowing the device to have applicability to several types of devices, such as LCD devices. See Wilk et al, col. 3 lines 66—68, and col. 4 lines 1-7. Moreover, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green (US 2002/0068389) in view of Harari et al (US 5,786,988) as applied to claim 4 above, and in further view of Gehring et al (US 2002/0163722).

Concerning claim 14, Green and Harari discloses the device as described above. Green discloses the third substrate layer is formed of a plastic or polymer material. See Green, ¶ 0038. However, Green/Harari et al does not disclose the use of polyvinyl chloride as the material used to form the third substrate layer. Gehring et al discloses the use of polyvinyl chloride to form a flexible substrate. See Gehring et al, ¶ 0088. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use polyvinyl chloride as the material for the third substrate layer, as polyvinyl chloride provides the flexibility required to form a flexible display, and also polyvinyl chloride is a transparent material, thereby increasing the brightness of a backlit LCD display formed by the device of Green. See Gehring et al, ¶ 0088. Moreover, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green (US 2002/0068389) in view of Harari et al (US 5,786,988) as applied to claim 4 above, and in further view of Celinska et al (US 2002/0087018).

With regard to claims 15 and 16, Green discloses the device as described above. Green states the second layer, specifically portion 16 of the second layer, may be formed by copper or nickel. See Green, ¶ 0047. However, Green/Harari et al does not disclose the electrically-conductive connector 16 as being formed from a transparent conductor, specifically a conductive oxide. Celinska et al discloses an electrically-conductive transparent oxide (ITO) used to form a conductor 436 on a substrate 434. See Celinska et al, Figure 4, ¶ 0048. It would have been obvious to one of ordinary skill in the art to form the electrically-conductive connector of Green from ITO as disclosed by Celinska et al, ITO provides the proper electrical conduction while being transparent such that brightness in a backlit display incorporating the ITO conductor is enhanced, as the ITO conductor does not block any light signals. See Celinska et al, ¶ 0048. Moreover, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nathan et al (US 2004/0124763) discloses a flexible display device, and Nishizawa et al (US 6323832) discloses a color display device.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda S. Peace whose telephone number is (571)272-8580. The examiner can normally be reached on M-F (8-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le can be reached on (571) 272- 2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rhonda S. Peace/
Examiner, Art Unit 2874
6/25/2009

/Uyen-Chau N. Le/
Supervisory Patent Examiner, Art Unit 2874